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NOTES ON GEOGRAPHIC DISTRIBUTION

Mollusca, Gastropoda, Ellobioidea, *Carychium minimum* O.F. Müller, 1774: Filling gaps. New population record for the State of New York, Northeastern United States.

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ABSTRACT: The current note reports two new populations of the introduced snail *Carychium minimum* O.F. Müller, 1774 at Ithaca, New York, USA. It confirms the naturalization of this species in Northeastern North America, which was previously known on drift material only.

The Carychiidae (Pulmonata, Ellobioidea) constitute one of only a few gastropod lineages that independently migrated onto land (Vermeij and Dudley 2000; Klussmann-Kolb *et al.* 2008). For the region defining the Northeastern United States and Canada, the taxon *Carychium* O.F. Müller, 1774 comprises at least three native and one introduced species (Figure 1) (Pilsbry 1948; Burch and Van Devender 1980; Hubricht 1985; Nekola and Barthel 2002; Grimm *et al.* 2009). The latter single species, the Herald Thorn *Carychium minimum* O.F. Müller, 1774, was originally endemic to Europe. It demonstrates an amphibious ecology, inhabiting permanent moist environments such as riparian zones, meadows and swamps (Watson and Verdcourt 1953; Morton 1955; Egorov 2007). Beyond its natural occurrence in distribution records, *C. minimum* is a familiar greenhouse species in Europe (Leiss and Reischütz 1996; Horsák *et al.* 2004) where it can be found amidst the roots of plants or on the bottom of flowerpots. Although questionable (Roth 1982), the first record of its occurrence in North America was described by Clapp (1912) who documented a population from Quincy, Massachusetts in close vicinity to a greenhouse. For the most part, only a few and scattered reports in North America (Roth 1982; Forsyth 2004) exist, which are predominantly based on empty shells in drift material, *e.g.* at the Grant River, Ontario, Canada (Forsyth *et al.* 2008).

We collected live *C. minimum* specimens from two localities in Ithaca, New York during early July 2009, which are e-vouchered and stored at the Goethe University Frankfurt am Main, Germany. These two populations were sampled at Beebe Lake on the Cornell Campus (42°26'58"N, 76°28'33"W) and near the Buttermilk Falls State Park off route 96B (42°24'03"N, 76°30'17"W), Tompkins County. Their presence confirms the assumption made by Grimm *et al.* (2009) that this introduced species should be found living in the Northeastern United States and Canada not only in the proximity of greenhouses and nurseries but also in its natural habitat. These individuals were found between layers of moist leaf litter and sticks at a seep by the lake while the latter population inhabited the riparian zone of a creek. Both juveniles and adult specimens were found. These finds verify that this species has well-established populations at these two locations. Hence, *C. minimum* may very well be more widespread and naturalized in Northeastern North America than previously thought.

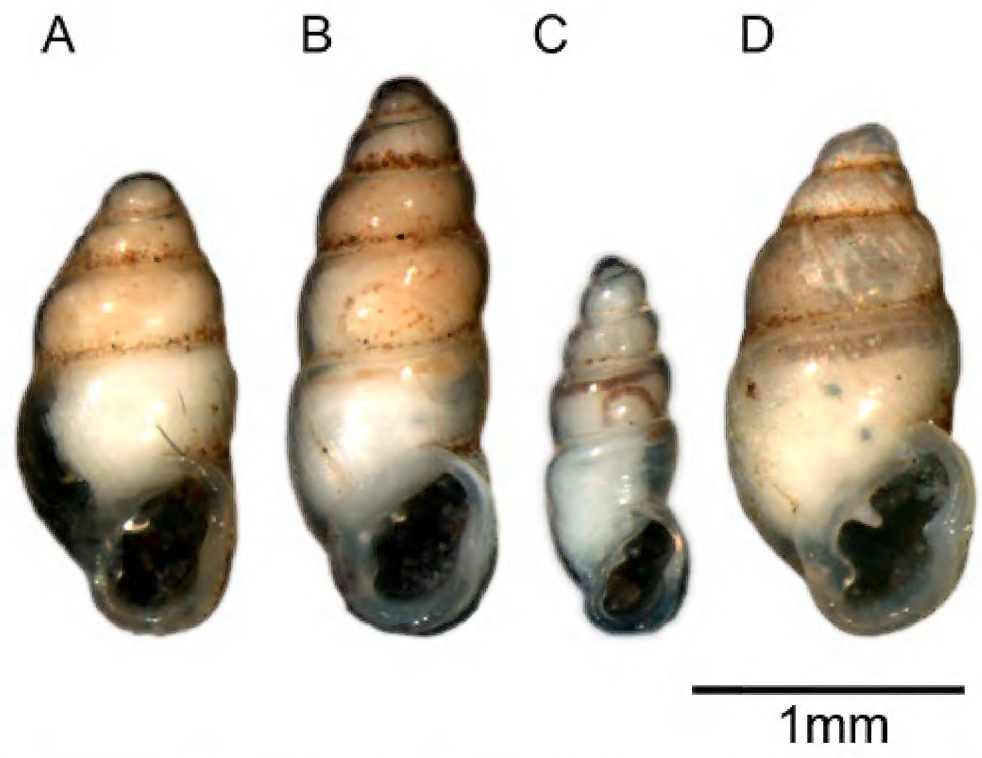

FIGURE 1. Native (A-C) and introduced (D) species of *Carychium* O.F. Müller, 1774 in Northeastern United States and Canada. A: *Carychium exiguum* Say, 1882; USA, New York, Grimes Glen. B: *Carychium exile* I. Lea, 1842; USA, New York, Watkins Glen. C: *Carychium nannodes* G.H. Clapp, 1905; USA, Tennessee, Overton County. D: *Carychium minimum* O.F. Müller, 1774; USA, New York, Ithaca, Tompkins County.

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